

REMARKS/ARGUMENTS

Favorable consideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-36 are pending in the application, with Claims 1-5, 7-11, 18-22, 24, 26, and 28-33 amended by the present amendment.

In the Official Action, Claims 1 and 32 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Maniwa et al. (U.S. Patent No. 6,577,192, hereinafter Maniwa; Claims 2-31 and 33-36 were indicated as containing allowable subject matter; and Claims 26-31 were indicated as not being examined.

Applicants acknowledge with appreciation the telephone interview between the Examiner and Applicants' representative on October 19, 2005. During the telephone interview, Claims 26-31 were discussed. Applicants' representative noted that contrary to the Official Action, Claims 26-31 do not recite a method of forming a device. Instead Claims 26-31 are directed to a method of predistortion control. In order to more clearly describe and distinctly claim Applicants' invention, the preambles to Claims 26-31 are hereby amended.

In a subsequent voice message, the Examiner reported that Claims 27-31 were improperly excluded from examination but Claim 26 was properly excluded from examination under a finding that Claim 26 did not further define the invention recited in Claims 2-4. While this finding has not been made of record in an Official Action, to advance progress toward allowance, Applicants hereby traverse and note that Claims 26-31 are directed to a method relating to the apparatus of Claims 2-4. Thus, by virtue of being a separate statutory class, Applicants submit that Claims 26-31 do further limit the invention of Claims 2-4 and, thus, are proper and in condition for examination and allowance.

Applicants acknowledge with appreciation the indication of allowable subject matter.

Applicants note that the Maniwa reference is not listed on the PTO 892 form provided with the outstanding Official Action. To ensure that the Maniwa reference is printed on the face of the patent that will issue from the present application, Applicants request that Maniwa be listed on a PTO 892.

Independent Claims 1 and 32 are amended to recite the use of a digital signal and a digital pilot signal. Support for this amendment is found in Applicants' originally filed specification.¹ No new matter is added. Dependent claims are amended to ensure antecedent basis.

Briefly recapitulating, Claim 32 is directed to a linear power amplification method. The method includes a step of inputting a digital signal and a digital pilot signal into a digital predistorter and adding to the digital signal and digital pilot signal a predetermined number of odd-order components based on a power series model to generate a predistorted signal. The predistorted signal is converted to an analog predistorted signal. The analog predistorted signal is upconverted to a send frequency band by use of a predetermined carrier frequency. The upconverted signal is power amplified and a portion of the power-amplified output signal is downconverted to extract odd-order distortion components. Coefficients of the digital predistorter are controlled so that the level ratios of the odd-order distortion components in a transmission signal become smaller than a predetermined value. Claim 1 is directed to an apparatus substantially corresponding to the method recited in Claim 32. Because the odd-order distortion components of the power series model generated in the digital predistorter are directly controlled to reduce the levels of the extracted distortion components, a distortion correction with small secular and temperature variations can be achieved.²

¹ Specification, Figure 4.

² Specification page 8, lines 12-15.

Maniwa describes a distortion compensation amplifying apparatus. In a predistortion type distortion compensation amplifying apparatus 9 a signal amplitude change processing unit 10 includes an odd power component calculating unit 14 which extracts a power component of odd-order of an amplitude quantity contained in a signal to be transmitted. A coefficient information output unit 15 is operable to select one of plural pieces of coefficient information based on a signal from the outside. A multiplying unit 16 multiplies a signal output from the odd power component calculating unit 14 by a coefficient information from the coefficient information output unit 15 and outputs an attenuation signal. An adding unit 17 subtracts the attenuation signal from the signal to be transmitted and outputs a result. The device of Maniwa causes an amplifier to operate within a range not exceeding a saturation region thereof, decreasing a spurious signal, decreasing an adjacent channel power, and enabling distortion compensation even if a frequency of reference to the memory is decreased.³ However, Maniwa does not disclose or suggest the use of a digital pilot signal.

MPEP §706.02(j) notes that to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Also, the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). Without addressing the first two prongs of the test of obviousness, Applicants submit that the current claims are non-obviousness over Maniwa because Maniwa fails to disclose all the features of Applicants' claimed invention.

³ Maniwa, Abstract.

Also, as acknowledged in the Official Action, Maniwa fails to disclose or suggest use of a power series model for digital predistortion. Nonetheless, the Official Action asserts that the DSP in Maniwa (apparently Figure 2 of Maniwa) is functionally equivalent to Applicants' claimed power series model. Applicants interpret this assertion as meaning the Official Action finds that Applicants claimed power series model is inherent in the disclosure of Maniwa. Applicants traverse and note that the Official Action provides no rationale for a finding of inherency. "The fact that a certain result may occur or be present in the prior art is not sufficient to establish inherency of that result or characteristic."⁴ "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'"⁵ The DSP of Maniwa could one of a variety of distortion models. Because the Official Action provides no explanation of why Applicants' claimed power series model is inherent, Applicants submit the rejection is improper.⁶

⁴ *In re Rijckaert*, 9 F.3d 1531, 1534, 28 USPQ2d 1995, 1957 (Fed. Cir. 1993).

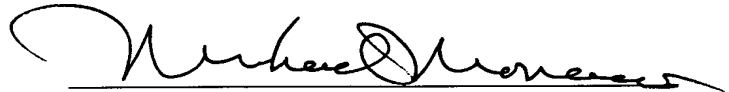
⁵ *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).

⁶ MPEP § 2112, IV "Examiner must provide rationale or evidence tending to show inherency."

Accordingly, in view of the present amendment and in light of the previous discussion, Applicants respectfully submit that the present application is in condition for allowance and respectfully request an early and favorable action to that effect.

Respectfully submitted,

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